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Redescription of Saurichthys madagascariensis Piveteau, 1945 (Actinopterygii, Early Triassic), with implications for the early saurichthyid morphotype

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Abstract

© 2016, © by the Society of Vertebrate Paleontology.ABSTRACT: Ray-finned fishes of the Saurichthyidae radiated rapidly after the end-Permian mass extinction event and became important predators within Triassic marine and freshwater ecosystems. Despite their extensive fossil record, the early evolution of saurichthyids still remains obscure. In an attempt to address this problem, we restudied Saurichthys madagascariensis, a key species from the Early Triassic of Madagascar (maximum age range middle Dienerian–early Smithian according to the available biostratigraphic data discussed herein), on the basis of ~160 specimens, including several new, nearly complete individuals. Saurichthys madagascariensis is a medium-sized (ca. 60 cm) saurichthyid with a well-ossified circumorbital series, a suborbital, an antoperculum, one pair of branchiostegal rays, all fins with segmented, branched lepidotrichia and fringing fulcra, and an extensive squamation consisting of specialized scales arranged in six longitudinal rows, with rhombic scales in between. A series of 'L'-shaped ventrolateral scales may be apomorphic for the Madagascan species. Comparisons among early saurichthyids reveal some shared traits, based upon which we hypothesize that the primitive condition of Saurichthyidae includes (1) broad scutes along the dorsal and ventral midlines articulating with one another via a specialized 'keel and groove articulation'; (2) high, anteriorly inclined flank scales subdivided by the lateral line sensory canal into a tuberculated dorsal and a vertically striated ventral portion; (3) posteriorly inclined ventrolateral scales; and (4) a 1:2 relationship between the mid-lateral scales and the neural arches. These data may help to resolve problems in phylogenetic studies concerning synapomorphies and convergences of saurichthyids with other taxa. Citation for this article: Kogan, I., and C. Romano. 2016. Redescription of Saurichthys madagascariensis Piveteau, 1945 (Actinopterygii, Early Triassic), with implications for the early saurichthyid morphotype. Journal of Vertebrate Paleontology. DOI: 10.1080/02724634.2016.1151886.

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